Autopsy.—The heart was about one and one-half times normal size, and showed vegetations along the edges of the mitral valve, on the wall of the left auricle, and among the chordae tendinae. The spleen was enlarged and contained an anemic necrotic infarction. The kidneys also contained infarctions. Cultures and smears from the vegetations showed small Gram+ cocci occurring in pairs and in chains of pairs.

Case XVII. (9514) Male, age 60, laborer, Dec. 9, 1913.—The patient was admitted to the hospital complaining of headache and rheumatism. He "caught cold" in October, and since had had bad headaches. About the same time there was pain and stiffness in the shoulders and left elbow. One month before admission there had been a diffuse blood-red rash over the back and chest which came suddenly and gradually disappeared. He had lost twenty pounds weight in five weeks.

The patient gave a history of three attacks of "malaria," the last in 1907. He had syphilis in 1884. No other acute infectious diseases were noted. He had had some shortness of breath for three years and frequent nycturia for two years.

The patient was poorly nourished and anemic. The teeth were poorly preserved and there were marked pvorrhea alveolaris. The tongue was coated and the left tonsil was enlarged. There was dullness and bronchial breathing over the left lung, and some impairment at the right apex. The A.C.D. was slightly increased to the right, there was a faint systolic blow at the apex which was not heard in the axilla, and there was a slight pericardial rub at the base. The liver and spleen were not enlarged or tender. There was some limitation of movement and tenderness in the shoulders. In the skin of the trunk were numerous discrete indurated papules, varying in size from a pinhead to a pea. (Sections showed them to be leukemic in character.) The superficial lymph nodes were enlarged.

The patient became comatose on December 15th. There had been severe headache and oliguria previously. He improved under active uremia treatments. On January 13th there was hemoptysis. On January 15th there were fresh petechiae in the skin and the spleen was palpable. On January 18th and 19th there were more petechiae and ecchymoses, and the patient became semi-comatose. On January 29th there was right-sided paresis and dusky discoloration and loss of temperature in the left foot and right hand. The patient died January 31st.

The urine showed albumin and casts. The blood showed a rapidly progressing anemia—the red blood corpuscles falling from 5,125.000 to 2,250.000 and the Hb. from 92% Sahli to 39% Sahli. The leukocytes varied from 17,680 to 30,000 and contained many myelocytes. Blood culture was positive.

Autopsy.—The heart was of normal size, and showed small recent vegetations on the mitral and aortic valves. Similar vegetations covered several atheromatous patches in the aorta. The liver was small, and contained many myelocytes in the pulp. Hemorrhages were found in the skin, periosteum, bone marrow, kidneys and pericardium. There was a marked pacchymeningitis interna hemorrhagica which had caused the compression and paresis. The superficial and deep lymph nodes were markedly enlarged.

Small Gram+ cocci occurring in pairs and in short chains of pairs were isolated from the vegetations on the heart valves, and from the bone marrow.

Case XVIII. (7121) Male, age 25, salesman.—On Sept. 17, 1913, the patient entered the outpatient department complaining of shortness of breath. His illness began one year previously with cough which lasted three months, sputum which was blood streaked and shortness of breath on exertion. He had had frequent headaches and night sweats and had lost in weight.

He gave a history of gonorrhea four years previously, and of a carbuncle in the neck eight years previously. There was no history of other acute infections. He entered the hospital Dec. 1st.

The patient was poorly nourished, very anemic and sallow. The tongue was coated, there was marked pyorrhea alveolaris and the tonsils were red. There were numerous moist rales in the bases of both lungs. The A.C.D. was slightly increased, and there was a presystolic and systolic murmur at the mitral area, and a systolic murmur at the base. The liver and spleen were not felt. The temperature was subnormal most of the time. The pulse was usually below 60 when the patient was in bed. The urine showed nothing abnormal. The blood contained 4,540,000 red blood corpuscles, 10,600 white blood corpuscles, and 60% Hb. Blood culture was positive.

The patient insisted on leaving the hospital and has not since been seen.

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MEDICAL HOSPITAL BOOKKEEPING.*

By WM. R. DORR, M. D., San Francisco.

This short paper is intended to bring before you some of the shortcomings of the medical profession in keeping medical records of their patients, especially in their hospital work, and also to suggest how the present methods of most hospitals may be augmented to the mutual benefit of the doctor, the hospital and especially the patient.

We find to-day that the great majority of successful medical practitioners have adopted some more or less complete system of keeping track of the financial obligations of their patients and that they are more or less systematic in keeping this record up to date and that they are willing to hire other people to help them. This is for the very obvious reason that they see an immediate financial benefit to themselves resulting from this method. Yet how many of these same men keep a complete and accurate medical record of their cases, that is, one that could be referred to a few years afterwards and give a true and complete record of all the medical findings?

Hospital medical histories are perhaps better than those kept personally by the medical man for in these we at least have a complete record of when the patient was admitted, when discharged, what the final diagnosis was, when operated on and an accurate record of symptoms, pulse, respiration, temperature, medication, nourishment, laboratory findings, etc., kept in an exhaustive manner by the

* Read before the San Francisco County Medical Society.

nurse, and if not extremely full and complete most caustically criticized by the attending doctor.

With, however, this fair start for a good history how few do we find with anything showing more than the findings of the intern? These notes as a rule have not even been read by the attending doctor and although they *may* be accurate they are frequently far from a proper record. In fact, we find many medical men even going so far as to state to the intern that no history is necessary and unless the rules of the hospital demanded it there would be absolutely no medical history and even with the rules there is frequently no history worth mentioning.

This condition has inspired a recent writer in one of the journals to make the following statement: "Case histories, as at present kept in most of our hospitals, are practically worthless. There is no competent supervision of the work and the case history often has no earthly relation to the diagnosis found at the head of the history sheet. Proper instruction in history taking should be given the house staff." This supervision of histories should be done by the attending doctor in order to have his histories of value to himself, to the hospital and last but really most important of all, to the patient especially in his or her future treatment. It is frequently sufficient for the immediate treatment of a case that the attending doctor remembers his findings at the time but he cannot possibly remember them a year or two years hence and the patient may be the sufferer.

It is not intended however that this paper should simply criticize present methods of keeping histories in the majority of hospitals of to-day. Nor is it intended simply to place the blame of these poor histories on the attending doctors, and not, where it is generally placed, on the interne. In fact the above condition is only mentioned for the reason that better histories are necessary before we can go forward into a field of increased usefulness to the patient. And it is this field of increased usefulness that I especially wish to bring before you.

The relation between the patients, the medical profession and the hospitals has been a constantly changing relation. Originally hospitals were used more or less as places to go only as a last resort. To-day they are being used more and more as places to go to obtain all of the latest knowledge and apparatus for the proper diagnosing and treatment of all diseases. Should not the hospital of the future aim to get beyond this stage and become also an active agent in assisting the patients to not only get well but to keep well?

We therefore believe that all hospitals, public as well as private, charitable as well as commercial, should not consider their histories complete when the patient is discharged nor should they consider their interest in the patient ended at that time but should adopt some scheme of keeping in touch with their patrons and keeping informed as to their condition, which would not only be beneficial to the patient but also to the hospital and also the doctor.

The modern hospital has adopted methods of cost accounting and is willing to spend money on clerical salaries in order to keep track of where its money has been expended, also to see where it can collect more money and also to see by comparison with other hospitals where it can save money. But should not the hospital of today besides having a detailed system of financial accounting also have a detailed system of medical accounting which, although demanding considerable expense, would in the end, I believe, not only pay the patient but also the doctor and the hospital.

One method of doing this has been recently most enthusiastically advocated by Dr. Codman of Boston. Through his efforts the Massachusetts General Hospital has adopted a systematic scheme of following up all cases after their discharge from the hospital which even in the very short time that it has been in use has shown that really this is one of the most valuable parts of the history of the cases as it shows what the hospital has really done for the patient.

Dr. Codman presented this scheme of increasing the field of the hospital at the Clinical Congress of Surgeons of which he was the chairman of the Committee on the Standardization of Hospitals and also presented the same proposition at the last meeting of the American Hospital Association. At both of these meetings his plan was most enthusiastically approved.

Several months ago at St. Luke's Hospital Dr. Sherman requested that all cases that had been treated by him during a certain period be written to and asked what their physical condition had been since leaving the hospital. About 40% of the letters were answered and the answers were, to say the least, most interesting both from a medical standpoint and also from the hospital standpoint.

The interesting data that was collected from these few cases mentioned above and the interest shown in this matter by the Clinical Congress of Surgeons and the American Hospital Association has prompted St. Luke's Hospital to adopt the system of sending a letter to each patient six months after their discharge from the hospital asking them how they have been from a medical standpoint since leaving and return their reply in an enclosed stamped envelope. This will, however, not be done until the consent of the doctor who treated the case is obtained and then they will be as carefully and systematically followed up as the unpaid accounts are followed up at present by the cashier.

In conclusion I wish to say that this system of following up patients may off-hand seem to be a very trivial matter about which to present a paper to this society, but I feel sure that all of you who think this matter over and realize the large amount of information that will be derived from this procedure will agree with me that it is one way that the hospitals have of increasing their usefulness to the community and that it should be adopted by all hospitals.

Discussion.

Dr. Harry M. Sherman: The discussion of Dr. Dorr's paper may be begun, so far as I am con-

cerned, by saying that the replies to my postcard inquiries reported all sorts of conditions, from wholly satisfactory to wholly unsatisfactory, and I am inclined to think that those which reported unsatisfactory conditions, while the more disappointing, were the more instructive.

Now Codman of Boston, in inaugurating the "follow-up" system referred to, was working at the Massachusetts General Hospital, a free hospital with a definite staff, and where no one may do any medical or surgical work except the appointees upon the staff. In dividing the work they have adopted a rather unusual plan, for they give to one man all the cases of a certain kind that come to the hospital, and he has them for a year to study and treat in the hope that he may be able to find some new point or fact out of the mass of material. For instance, this last year Codman himself was studying particularly that very trite subject—chronic appendicitis; another year he will have some other subject assigned to him; and with this system it is impossible that there shall be a total failure of the production of some new knowledge or some new method. On the other hand, in the semi-private hospital sanataria that we have here in San Francisco, it is obvious at a glance that no such system is possible. At St. Luke's Hospital, where I am a member of the staff, the majority of the patients are sent in by physicians on the outside who, as patrons of the hospital, have access to and the privileges of the wards and operating rooms. There can be, under these circumstances, no systematic work of any kind. We have many different men treating many different cases in many different ways, and that is all.

Dr. Dorr has said that some of the voluntary attendants at St. Luke's have expressed themselves at being perfectly willing that there should be no record of any kind kept of the patient, and when we see that the record of a patient under such circumstances would be merely an isolated statement of a single patient which could contribute in no way to any mass of material in the form of statistics, it is obvious that there is no real reason for writing such a history. This, however, would be more from the standpoint of the physician than of the patient, for if a physician does not care for that kind of self-instruction which he gets by writing down his patient's symptoms, his diagnosis, and his reason for a method of treatment, the history taken by the interne can be of no value to him. But, on the other hand, a proper history of a patient treated in the hospital must be of value to the hospital. The hospital has an interest in the method of treatment and in the result of every patient it receives, no matter whether it be a hospital free patient in the ward, a hospital pay patient, a private patient of a member of the staff, or a private patient of a physician not on the staff; and it is only by proper histories that the hospital can tell what the many men practicing there are doing with their patients, and it is only by a "follow-up" system that the hospital can tell what is the real result for humanity as the reward of the investment and the labor of maintaining the hospital. For if a patient goes to the hospital for treatment, leaves the hospital with a mere case record of being improved or cured, but relapses to the original condition within a short while after leaving the hospital, the hospital's time and money, the patient's time and money, and the physician's time have all been wasted. The only way such a waste can be stopped is to know exactly how it occurs and why. That will only be possible when the "follow-up" system is combined with proper histories of the patients in the hospital, whether they are treated by members of the staff or by physicians and surgeons not on the staff.

Now there are two investigations of the hospitals of the country imminent. One is to be made under the direction of the Clinical Congress of the Surgeons of North America, and the committee of which Codman is chairman will be the committee that will do this. The other investigation will, I am told, be taken up by the Carnegie Foundation, but I do not know the details of the intention.

When A. Flexner was investigating the schools of this country and Canada for the Carnegie Foundation, his first inquiry on going to a school was to ask for records of the medical clinic; for the medical clinic is the heart of the whole institution and into it every patient of importance eventually finds his way, no matter what other clinic he may first go to. He wanted to see not only how the histories were kept in the medical clinic, but he wanted also to see what were the cross references between the medical clinic and the other clinics. If he found that the records were poor or that there were none in the medical clinic, his interest in that institution ceased.

When the Committee of the Clinical Congress goes to visit a hospital to inspect it and give it a rating, the first questions that the visitors ask will be: "Let us see the history files. Show us how the histories are kept." And if they find that no histories are kept or the histories are kept badly, that institution will have a very low rating in spite of its possible possession of an imposing plant and its ample patronage by well-to-do people; so that the hospital is interested in having just as definite a system of bookkeeping regarding its patients as it has regarding the money expenditure in the office, for the patients, cured or not cured, helped or not helped, are the real output of the hospital, and no one can expect that money will be given to hospitals for the foundation of free beds and the final establishment of a big eleemosynary institution if there cannot be a definite showing of what is gotten for the investment of money given.

T. Gaillard Thomas, the famous gynecologist of New York, among whose assistants I was at one time counted, used to tell us: "Always write histories of all your patients. It is very unlikely that you will ever read them after having written them; it is very certain that nobody else will ever read them; but the act of writing them will be of inestimable value to you." For many years I thought this was true, but I find myself constantly going back more and more to re-reading old histories, histories of patients whom I treated twenty-five years ago here in San Francisco—so that I am re-reading my own old histories and finding much to learn in doing it. I commend the writing of histories and the reading of histories to all who wish to follow out a most efficient method of self-instruction which will benefit not only the writer but also the patient and the hospital.

LEUKOCYTIC EXTRACT IN THE TREATMENT OF PNEUMOCOCCUS INFECTIONS IN RABBITS.

By MR. ARTHUR MEINHARD and H. B. REYNOLDS, M. D., Palo Alto.

As a result of the original work of Hiss, and Hiss and Zinsser [2] with leukocytic extract (Hiss) in various infections in rabbits, one of us has used this product in the treatment of various infections. Among these were nine cases of pneumonia constituting the most seriously ill of a group of some thirty pneumonias.[1] None of these cases died. Stimulated by these results, Meinhard has further investigated the subject through the medium of artificially produced pneumococcus infection in rabbits. Some of these experiments have been un-